Current Trends in Breast Cancer Reconstruction

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Why do we do breast reconstruction?

- Breast cancer is common - 232,340 invasive and 64,640 non-invasive new breast cancer diagnoses in 2013
- Breast cancer affects many young, healthy women - Half of breast cancer is diagnosed in women under 61
- Genetic testing for BRCA mutations identifies many women who choose prophylactic mastectomies


Why do we do breast reconstruction?

- Survival rates are excellent

Figure 8. Female Breast Cancer, 2001-2007
- Five-year Relative Survival Rates (%) by Stage of Diagnosis and Race

Why do we do breast reconstruction?

- Increase sense of well being after mastectomy
- Improved psychological health, self-esteem, sexuality, and body image and reduced concerns of cancer recurrence


After diagnosis of breast cancer

- First choice to make is mastectomy vs. lumpectomy and radiation
- Equal survival - NSABP trial
- Often the choice is influenced by fear of new cancer and concern for the appearance of the breast- rate of contralateral prophylactic mastectomy is rising

Standard options for mastectomy reconstruction

- Tissue expander with implant
- Latissimus flap with implant
- TRAM flap from abdomen
**Tissue expander/implant**

- Most common
- Pros: shorter surgery, less invasive, fewer scars
- Cons: need implant, so less natural shape and feel, 2 stage surgery, likely to need more surgery to replace implants later on

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**Tissue expander/Implant Reconstruction**

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**Current Trend**

**Nipple-sparing Mastectomy**

- Improved cosmetic outcome and higher patient satisfaction
- Believed to be safe for prophylactic mastectomy and early stage cancers distant from the nipple
- Still no long-term follow-up but recurrence rates equivalent at mean follow up of 101 months

Nipple sparing mastectomy

Pre-op  After expander and implant exchange

Best suited for patients with small to moderate size breasts without drooping.

Current Trend
Single stage implant
- With the use of acellular dermal matrix (cadaver product) for partial coverage of implant, some implant reconstructions can be performed in one surgery
- However- fairly high rate of revision surgery
- Best suited for small to medium size breasts

Nipple sparing single stage implant reconstruction

Preoperative  4 weeks after bilateral mastectomy with reconstruction
**Current Trend**

*Increased indications for post mastectomy radiation*

- Some trials show improved survival in patients with small (T1/T2) tumors with 1-3 positive nodes.
- Standard recommendations are post-mastectomy radiation for T3 tumors with positive nodes, Stage III tumors, or T1/2 tumors with 4 or more positive nodes.

*Postmastectomy Radiotherapy: Clinical Practice Guidelines of the American Society of Clinical Oncology*  
*Journal of Clinical Oncology* 2001

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**Radiation negatively affects implant reconstruction**

Increased rates of

- Infection
- Capsular contracture
- Implant removal

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**Tissue based reconstruction**

- **Pros**
  - Brings healthy tissue in the case of radiation
  - Can avoid use of implant and implant related problems
- **Cons**
  - Adds additional donor site scars
  - More extensive/longer surgery
Latissimus Flap

- Covers the implant with tissue from the back
- Pros - covers implant with tissue, can be single stage, helps with radiation
- Cons - scar on back, uses a major muscle

Latissimus Flap Reconstruction

Previous right lumpectomy and radiation with recurrence

After skin-sparing mastectomy, latissimus flap with expander and implant exchange, implant on left

TRAM flap

- Uses skin and fat from abdomen to create breast mound
- Pros - more natural shape and feel, better match for unilateral mastectomy, no implant required, “tummy tuck”
- Cons - longer more invasive surgery, large scar, uses rectus muscle - can get hernia/bulge
Current Trend
Muscle sparing flaps: DIEP and SIEA
- Moves abdominal tissue using microsurgery
- Preserves rectus muscle so decreased problems with abdominal wall

DIEP flap reconstruction

Deep inferior epigastric vessels

DIEP flap reconstruction

Perforator
**DIEP Flap Reconstruction**

*Pre-op*

After left mastectomy, immediate DIEP flap, nipple reconstruction, abdominal scar revision, nipple tattoo - 6 months later

**DIEP Flap Reconstruction**

*Pre-op*

After left mastectomy, immediate DIEP flap, nipple reconstruction, abdominal scar revision, nipple tattoo - 6 months later

**DIEP Flap Reconstruction - nipple sparing**

*Pre-op*

After bilateral mastectomy with DIEP flaps, abdominal scar revision
Breast Conservation Therapy

- If patient is a candidate for lumpectomy, breast conservation gives equal survival
- Advantages:
  - Surgery less painful and invasive
  - Keep more natural breast tissue
- Disadvantages:
  - Must continue getting mammograms
  - Higher risk of local recurrence

Breast Conservation Therapy

Right breast lumpectomy and radiation: Good cosmetic outcome
Left breast lumpectomy and radiation: Poor cosmetic outcome

Current Trend
Lumpectomy Reconstruction

After right lumpectomy, before radiation
Lift before radiation to avoid indentation deformity
Current Trend
Lumpectomy Reconstruction

After right lumpectomy, before radiation
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Current Trend
Lumpectomy Reconstruction

Left breast shows large lumpectomy in lower half of breast
One year after left lumpectomy reconstruction and right reduction for symmetry with completion of radiation therapy

Current Trend
Microvascular Lymphedema Reconstruction

- Lymphovenous bypass
- Vascularized lymph node transfer
FAQs and FACTS

- Will insurance cover this "cosmetic surgery?"
- Women's Health and Cancer Rights Act - 1998 federal law mandates
  - Reconstruction of breast removed by mastectomy
  - Surgery and reconstruction of the other breast to make breasts look balanced or symmetrical
  - Any optional breast procedures done to improve health or during reconstruction
  - Any physical complications at all stages of mastectomy, such as lymphedema

- Does having reconstruction prevent finding recurrence?  
  Most recurrences (72%) are in skin and subcutaneous tissue. Mean time to detection of chest wall recurrence similar (27.1 vs. 29.5 months). Overall survival is unchanged. 

- Am I too old for reconstruction?
  In women over 65 who are otherwise healthy, even the most complicated flap surgery has been shown to be safe and give good results. 
FAQs and FACTS

- Are silicone implants dangerous? Do they cause lupus?
  - A voluntary moratorium on silicone implants for cosmetic surgery was imposed by the FDA in 1992 over concerns for increased risk of connective tissue disease in women with silicone implants. Large studies showed no link between silicone gel and autoimmune diseases. FDA approved silicone implants for cosmetic use again in 2006. 

Why do we do breast reconstruction?

We restore, repair and make whole those parts...
Which nature has given but which fortune has taken away,
Not so much that they may delight the eye
But that they may buoy up the spirit and
Help the mind of the afflicted.

Gaspar Tagliacozzi, 1597

Why do we do breast reconstruction?

Robin-4 weeks after bilateral mastectomies for breast cancer